From:	Morris, Cris@Waterboards
To:	Stuber, Robyn; Cuevas, Veronica@Waterboards
Subject:	RE: Welch"s t-test
Date:	Thursday, February 26, 2015 12:39:40 PM

Thank you, Robyn.

From: Stuber, Robyn [mailto:Stuber.Robyn@epa.gov]
Sent: Thursday, February 26, 2015 12:31 PM
To: Cuevas, Veronica@Waterboards
Cc: Morris, Cris@Waterboards
Subject: Welch's t-test

See Order section VII.J: Changes to first paragraph.
See MRP section V.A.5.a: Changes to first paragraph.

Please note that the 3 new sentences are taken directly from TST implementation document definitions. This document is already referenced in the paragraph (EPA 833-R-10-003,2010).

The discharge is subject to determination of "Pass" or "Fail" and "Percent Effect" from an effluent chronic toxicity test at the discharge IWC using the Test of Significant Toxicity (TST) approach described in National Pollutant Discharge Elimination System Test of Significant Toxicity Implementation Document (EPA 833-R-10-003, 2010), Appendix A, Figure A-1, and Table A-1 and Appendix B, Table B-1. The null hypothesis (Ho) for the TST approach is: Mean discharge IWC response =0.75 × Mean control response. A test result that rejects this null hypothesis is reported as "Pass". A test result that does not reject this null hypothesis is reported as "Fail". The relative "Percent Effect" at the discharge IWC is defined and reported as: ((Mean control response - Mean discharge IWC response) ÷ Mean control response)) × 100. This is a t-test (formally Student's t-Test), a statistical analysis comparing two sets of replicate observations—in the case of WET, only two test concentrations (e.g., a control and IWC). The purpose of this test is to determine if the means of the two sets of observations are different (e.g., if the IWC or ambient concentration differs from the control (i.e., the test result is "Pass" or "Fail")). The Welch's t-test employed by the TST approach is an adaptation of Student's t-test and is used with two samples having unequal variances.

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